

**METHOD AND APPARATUS FOR DETECTING EMBEDDED REBAR WITHIN
AN INTERACTION REGION OF A STRUCTURE IRRADIATED WITH LASER
LIGHT**

Abstract of the Invention

A detection system is used during irradiation of an interaction region of a structure including embedded material with laser light. The detection system includes a collimating lens positioned to receive light emitted from the interaction region. The detection system further includes an optical fiber optically coupled to the collimating lens and a spectrometer optically coupled to the optical fiber. The spectrometer is adapted for analysis of the light for indications of the embedded material within the interaction region. The spectrometer includes an input slit adapted to receive light from the optical fiber. The input slit has a width selected to provide sufficient light transmittance and sufficient resolution. The spectrometer further includes an optical grating adapted to receive light from the input slit and to separate the light into a spectrum of wavelengths. The spectrometer further includes a collection lens adapted to receive a selected range of wavelengths of the separated light from the optical grating. The spectrometer further includes a light sensor adapted to receive the selected range of wavelengths and to generate a signal corresponding to an intensity of the received light.

H:\DOCS\BSI\BSI-5471.DOC
031704